Ross Meets Bell: Linex Utility and Riskier Background Risk

Michel Denuit, Catholic University de Louvain
Louis Eeckhoudt, IESEG School of Management
Harris Schlesinger, University of Alabama

Discussion by Jacqueline Volkman-Wise
Temple University

American Risk and Insurance Association Conference
August 2013
• Majority of utility functions currently used satisfy standard risk aversion
  – DARA and DAP satisfied jointly
  – Includes: Logarithmic, Power, Mixture of Exponentials
  – Addition of background risk causes individual to make less risky decisions
• Arrow and Pratt models with background risk
  – Need Ross’ stronger DARA and DAP

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<thead>
<tr>
<th>Arrow-Pratt</th>
<th>Ross</th>
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<tbody>
<tr>
<td>$\exists G, G' \geq 0, G'' \leq 0 : A = G(B)$</td>
<td>$\exists G, G', G'' \leq 0 : A = \lambda B + G$</td>
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– Leads to Linex utility

$$u(x) = lx - c \exp(-\gamma x)$$
CONTRIBUTION

• Class of utility functions that satisfies Ross’ stronger version of DARA and DAP

• Extend to increase in riskiness of background risk by nth degree stochastic dominance

• Consistent with insurance demand decisions
  – Introduction of background risk will increase coinsurance rate
  – More risk averse will have higher insurance premia
• Broader Uses of Linex Utility
  – Application to other types of decisions:
    • Portfolio allocation and asset pricing models
    • Consumption & life cycle savings models
  – Dynamic models
    • Flexibility due to 2 attribute nature?
  – Consistent with current literature?

• Parameterization of Linex Utility
  – Weighting parameter
  – Different for homeowners’ insurance vs. cat insurance